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BECAUSE OF EASTER VACATION, THERE WILL BE NO BULLETINS ON APRIL 6. NEXT ISSUE WILL BE APRIL 13.

(SEE BULLETIN NO. 1) J. BAYLOR ROBERTS

A WOMAN FACTORY-OWNER OF KARACHI, PAKISTAN, GIVES ORDERS TO HER FOREMAN

Pakistan's women have advanced a long way since the great majority of them discarded purdah, the old custom of living secluded from the public and wearing veils in the street. For comfort and tradition, however, they still wear the graceful, flowing sari.

Bulletin No. 1, March 30, 1953

Pakistan Sets the Experts Wondering

PAKISTAN is like no other free nation on the map today; it exists in two parts separated by 1,000 miles of territory. This gap, belonging to the Republic of India, is about the equivalent of the air-line distance between New York and Kansas City, Missouri.

West Pakistan is a big region, as large as Texas and Alabama combined, but well over half the people live in East Pakistan which has only about one-sixth the area.

When Pakistan became a self-governing dominion in the British Commonwealth family six years ago, experts wondered whether a country so widely divided could long survive politically and economically. Pakistanis buckled down to demonstrate it could.

Now Islam's Largest Nation

The new nation (its name means "Land of the Pure") had to start virtually from scratch in an effort to modernize the country. When Asia's vast subcontinent was divided between India and Pakistan, India inherited the most developed portions, with major manufacturing centers and similar valuable assets. The two zones of Pakistan, which had relied on agriculture for centuries, suddenly faced the problem of creating the machinery of government, opening trade with other nations, and handling a host of other vital matters.

By way of incentive, Pakistanis realized that, with a population of more than 75,000,000, theirs was the largest Moslem nation in the world. If they succeeded, Pakistan could gain great influence, political and cultural, with the other Moslem countries.

Thus far Pakistan has surprised the experts. The government has been kept financially stable. More goods are being sold in world trade than the country needs to buy, hence a surplus has built up. The east and west sections are effectively linked by water and air transport, and by radio communications. Aviation has developed rapidly.

From a Slender Reed, Mighty Support

On the hills and by the watercourses of East Pakistan grows a reed-like plant. Its stalks yield a golden fiber without which the new nation probably could not survive. The fiber is jute, and the world today uses more of it than any other natural fiber except cotton.

Pakistan has a near-monopoly on jute production. Jute earns three-quarters of the money that comes in from all exports. In the beginning, the country had to sell its jute unprocessed but mills have been built to remedy that and the processed jute brings better prices.

Jute is needed for many things—twine, burlap bags, upholsterers' webbing, women's hats, paper, imitation silk, backing for carpets and linoleum, dress materials, and cotton baling. Among the biggest buyers is the United States Post Office which uses jute twine for bundling mail.

Although East Pakistan's jute production is vital to the nation's

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FROM FERTILE FIELD TO REFINERY, A PUERTO RICAN CENTRAL TAKES THE SUGAR THAT IS ONE OF THE ISLAND'S CHIEF SOURCES OF WEALTH

Palm-bordered roads converge on this "central" near Ponce in southern Puerto Rico. There every step in the production of sugar takes place. Cane is crushed in the mill and other plants transform it into refined sugar and rum. Each central (accent on the "tral") is a small city, with its own homes, stores, and water system.

Bulletin No. 2, March 30, 1953

Puerto Rico Struggles to Make More Jobs

THE government of Puerto Rico has set a tremendous task for itself—creating enough jobs for the people who crowd the United States island in the Caribbean.

When Puerto Rican leaders launched the island's self-improvement drive, they called it "Operation Bootstrap," a label that has served as a rallying cry. Before Bootstrap, the national income was small and poverty widespread. Numerous slums existed. Few children were getting the proper opportunity to attend school. Thousands of workers were leaving to seek jobs in New York and other big cities.

Lifted by Their Bootstraps

Now, having lifted themselves by their bootstraps, the islanders have built almost 200 new industrial plants. They turn out everything from jewelry and aluminum products to surgical supplies and zippers. Modern hotels have been built to attract visitors from all over the western hemisphere. Slums are being liquidated by modern housing projects, one so big it provides homes for 35,000. Agriculture is being diversified to eliminate dependence on sugar, still the main crop (illustration, inside cover). Rivers are being harnessed for electric power and irrigation. The national income has more than doubled.

Governor Luis Muñoz Marin, Bootstrap's spark plug, refuses to be complacent over what has been accomplished. He sees a hard pull ahead. "*Jalda Arriba*" (Up hill), is the way he puts it, speaking of goals to be attained by 1960. He hopes Puerto Rico then will reach a national income of $2,000,000,000, more than twice that of 1952. That, plus further diversification of industry, would mean enough jobs for all workers, perhaps even a labor shortage if the migration of breadwinners continues.

Bootstrap's outcome will have a bearing on the political future of the island. At present it is a free commonwealth of the United States, a status midway between that of a territory and statehood. Once self-supporting, Puerto Rico will decide whether it desires independence or wishes to seek admission to the union. Big emphasis, meanwhile, is on seeing that the younger generation will have the training and skills needed a few years hence to provide leadership and know-how. That is why the island is now spending a third of its budget on education.

Crumpled Paper Describes Terrain

Columbus discovered Puerto Rico in 1493 on his second voyage to the New World. When he returned to Spain, Queen Isabella asked him to describe it. Columbus, so the story goes, crumpled up a piece of paper and put it on the table before her. That was a good description without words. Of volcanic origin, Puerto Rico is creased by rugged ridges and mountains, except for the plains rimming the coast line.

The tortured terrain of the country is one cause of its problems. Only about half the land can be profitably cultivated. As a result, the people are unable to raise enough to feed themselves and must import food.

Before Operation Bootstrap started, agriculture was the main occu-

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financial well-being, the open spaces of West Pakistan are believed to offer the most promise. There are located Karachi (illustration, cover), the capital, and most of Pakistan's large cities. Karachi is the air gate to the Orient from Europe and has an excellent port for shipping. Its population has quadrupled to the 1,200,000 mark in five years.

The western segment of the nation, unlike its eastern counterpart, normally produces more food than it requires, so can export surplus wheat and rice. Cotton, hides, wool, and fruit also are major products.

Pakistanis look to their west as did the United States in its period of expansion. They say their North-West Frontier Province can become California's fruit-producing rival. It not only can raise all the varieties the Golden State does, but also such tropical "extras" as bananas, mangoes, and litchis. It may be time before this "California of the East" pays substantial dividends, but the dream makes plain that planners are not overlooking any resource in bolstering their nation's progress.

NOTE: Pakistan appears on the National Geographic Society's map of Asia and Adjacent Areas. Write the Society's headquarters, Washington 6, D. C. for a map price list.

See also, "Pakistan, New Nation in an Old Land," in *The National Geographic Magazine* for November, 1952; "South of Khyber Pass," April, 1946; "India—Yesterday, Today, and Tomorrow," October, 1943; and, in the GEOGRAPHIC SCHOOL BULLETINS, March 6, 1950, "Karachi Serves Pakistan as Port and Capital." *(Back issues of the Magazine may be obtained by schools and libraries from the Society's headquarters at a special discounted price of 50¢ a copy, 1946–to date; 90¢, 1930–1945; $1.90, 1913–1929. Earlier issues at varied prices.)*

DAVID PESKIN

KARACHI'S PORT TRUST BUILDING CONTRASTS WITH THE TRAFFIC WHICH AMBLES BEFORE IT. A CAMEL (FOREGROUND) TRANSPORTS A LOAD OF RATTAN ON NEW-STYLE RUBBER TIRES

Bulletin No. 3, March 30, 1953

Pious Phrases Travel Cairo's Phone Wires

NEAR the heart of Cairo, Egypt's capital, millions of words of blessing pour through the nation's largest telephone exchange. The office was installed last year near Bab el-Luk.

Moslems preface their telephone conversations with such affable phrases as "Good health be with you, my brother," and "To you good health and the blessings of Allah."

Old Barracks Giving Way to Modern Buildings

The Bab el-Luk area might be called the Square of the Gate That Isn't There, for a small park has replaced the old gate, or bab. The park occupies a central position in the teeming Egyptian capital. The buildings of parliament and the various government ministries lie to the south. Near by are the Royal Geographical Society headquarters and Abdin Palace from which King Farouk fled last year.

The area also is well known for its railway station from which a short line leads to the fashionable suburb of Maadi. To the west there is considerable building activity where the old Kasr el-Nil barracks are giving way to modern structures. Within sight is the Egyptian Museum which houses, among other antiquities, the heavy gold funeral mask of King Tut-Ankh-Amen.

To the north are the hotels, motion picture theaters, banks, and office buildings of a modern city of more than 2,000,000 people. Grim reminder of the riots of January, 1952, is the vast, ornate hulk of Shepheard's Hotel. Although nearly all the other damaged buildings have been repaired, the charred walls of the world-famous old hostelry rise gloomily behind temporary fencing.

Perhaps the city's sharpest contrast, ancient to modern, is observed when pretty Egyptian girls play basketball at the coeducational American University. They play on a court near the ancient Bab el-Luk, and within a stone's throw of the modern telephone exchange.

Areas Named from Gates

Cairo is filled with such contrasts. When it was a walled city, each bab took its name from or lent its name to an area. One of these old gates, the Bab ez-Zuweileh, still stands and is a popular attraction for tourist photographers. Many Moslems call it the Gate of the Mutawalli, holiest of those who "stand near God," and to its iron bars tie shreds of clothing as votive offerings.

But none of the ancient gate sites can compete with Bab el-Luk in contrasts. Thus, in the midst of the political changes and disorders of Cairo, a stranger listening in at the Bab el-Luk telephone exchange might well be confused by the fervent expressions of good will which precede the commonplace and wrangling business discussions of the day.

Flattering salutations weave back and forth across the network of wires. If a Moslem is telephoning a Christian, he says, "May your day be happy and white as milk." And the Christian may reply, "May your blessing return upon you and bring you peace."

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pation. The island offered few industries or other businesses for those unable to find work on plantations.

To complicate matters further, Puerto Rico has the world's highest birth rate, hence the number of job seekers keeps increasing. When the island came under the Stars and Stripes in 1898 it had less than a million people. Today it counts 2,226,000 United States citizens, mostly of Spanish descent—a population about equal to Oklahoma's but crowded into an area about one-twentieth the size of the "Sooner State."

Spanish heritage and life in the tropics combine to make most Puerto Ricans easy going, like their Latin American neighbors. There is a tendency to put off until *mañana* (tomorrow) what might be done today. Operation Bootstrap couldn't succeed that way, so from the outset its unofficial motto has been: Farewell to mañana.

NOTE: Puerto Rico is shown on the Society's map of Countries of the Caribbean.

For additional information, see "Growing Pains Beset Puerto Rico," in *The National Geographic Magazine*, April, 1951; and "Puerto Rico, Watchdog of the Caribbean," December, 1939 (out of print; refer to your library).

See also, in the GEOGRAPHIC SCHOOL BULLETINS, April 23, 1951, "Puerto Rico Makes Progress in Many Fields."

HAMILTON WRIGHT

FROM THE PLAZA COLÓN AT THE FOOT OF FORT CRISTÓBAL, BUSES START ON THEIR ROUNDS OF THE ISLAND CITY THAT WAS OLD WHEN THE MAINLAND STATES WERE FORMED

Bulletin No. 4, March 30, 1953

Montreal River Commerce Revives with Spring

WARM spring breezes that end skiing and skating competitions in Montreal start speculation on another sort of contest—the annual race of deepwater ships to open Canada's largest port.

Montreal is one of the great ports of the world, even though ice closes it from December to April. Standing at the head of deepwater navigation on the St. Lawrence River, it is second only to New York in North American port facilities.

Government Icebreakers Clear River Channel

The race of ocean-going skippers for Montreal's gold-headed cane is headline news in Canada's largest city. Canadian and foreign captains compete for the cane which is awarded annually by the city to the man who brings his ship in first each April.

Early-season ships plowing to Montreal must work through the ice fields and floes of the Gulf of St. Lawrence, and then sail up the channel of the river itself, cleared by government icebreakers (illustration, next page). This long deepwater passage from the sea is unique. Montreal is nearly 750 miles from the open waters of the Atlantic Ocean.

The port's position has advantages. It is closer to Southampton, England, and Le Havre, France, than is New York City, offering smooth river and gulf transportation almost a third of the way to Europe.

Montreal stands on an island at the confluence of the Ottawa and St. Lawrence rivers. A short distance southwest the St. Lawrence froths and churns in Lachine Rapids, lowermost of a series of navigation hazards that stand between the city and the Great Lakes.

The Welland Canal cuts across Ontario Province's Niagara Peninsula to bypass Niagara Falls. Its locks and those of the Lachine and other canals limit the size of the vessels that can move from the ocean, past Montreal, and into the Lakes. The Lachine Canal has a minimum depth of less than 14 feet, with locks little more than 250 feet long.

Duluth 2,300 Miles from the Ocean

A comparatively small number of Dutch, Scandinavian, and German ocean-going ships, especially built for these locks, can continue through the bottleneck into Lake Erie. Once there, they ply without further obstruction as far as the Lake Superior grain and iron-ore ports of Port Arthur, Ontario, and Duluth, Minnesota. The latter city is 2,300 miles from the open sea.

Grain, oil, and other bulky cargoes are shipped by lake vessel to Buffalo, or, if the ships are small enough to transit the canals, on to Montreal itself.

Freighters have been moving down the Great Lakes for the past month. When, on March 1, the *James Watt* steamed from her winter haven at Detroit down the Detroit River into Lake Erie, she gave Great Lakes shipping the earliest start in its history. Navigation on these inland seas had never before begun earlier than March 9. With this

Though the message be a dispute over politics, haggling over a load of sugar cane, or the hiring of a resplendent guide to museum and pyramid, the most common words of all will be:

"Es-Salamu aleikum" (Peace be with you). And the answer, even if the wrong number has been called in the middle of the night, "Aleikum es-salam" (To you, too, God's peace).

NOTE: Cairo may be located on the Society's maps of Africa and the Arabian Peninsula, and Bible Lands and the Cradle of Western Civilization.

For additional information, see "The Spotlight Swings to Suez," in *The National Geographic Magazine* for January, 1952; "American Fighters Visit Bible Lands," March, 1946; "American Alma Maters in the Near East," August, 1945; and "Daily Life in Ancient Egypt," October, 1941 (out of print; refer to your library).

See also, in the GEOGRAPHIC SCHOOL BULLETINS, October 6, 1952, "Egypt Adds to Ancient and Modern History"; and "Riot-Torn Cairo Outranks All Arab Cities," February 18, 1952.

ALFRED T. PALMER

DONKEY POWER PROPELS A TWO-WHEEL GAS TANK THROUGH THE STREETS OF CAIRO

The Book of Fishes—1952 Edition

Now available to schools, libraries, and also to individuals over the world is the National Geographic Society's long-awaited new edition of *The Book of Fishes*, edited by Dr. John Oliver La Gorce. The handsome 340-page volume is designed to appeal to novice and expert alike, and it opens a fascinating new world to those who have never wet a fly or cast a plug. Not being published for profit, it can be obtained at cost.

For teachers and school librarians, the carefully indexed book is noteworthy for its lifelike color paintings and color photographs of 236 North American species of fish and other aquatic life. Each species is fully described in an accurate, non-technical biography. In addition, 15 profusely illustrated articles recount various strange and interesting aspects of the watery world and its inhabitants—both food and game fish.

The Book of Fishes may be ordered only from the National Geographic Society, Washington 6, D. C. $6.50 in U. S. and Poss.; elsewhere, $6.75 in U. S. funds. Postpaid.

THE ST. LAWRENCE. FIR TREES MARK THE ROUTE OF A WINTERTIME ROAD ACROSS THE ICE

Bulletin No. 5, March 30, 1953

Versatile Carbon Black Serves Many Purposes

DINGY soot, which blackens everything from saucepans to skyscrapers, is invaluable as the basis of countless essential articles and services of everyday life.

As carbon black, it speeds up traffic, supplies paint for millions of houses, and ink for billions of pages of printed matter. And these are only a very few of its myriad jobs.

Carbon black toughens tires and other products made of rubber. Tires made without it would do well to roll 5,000 miles. With carbon black in their composition, they are good for 30,000 miles and more.

Toughening Quality Discovered Accidentally

The ability of carbon black to toughen rubber was discovered accidentally. In the early days of tire making, manufacturers who used it to color their tires in order to distinguish them from the whitish-gray ones of their competitors found that the element contained properties that also made the rubber more durable. These properties are not thoroughly understood even today.

A modern passenger tire of the size most frequently sold contains about four pounds of carbon black. The material is so messy to handle that British stevedores get extra pay, known as "dirty money," for working the ships which carry it.

In prehistoric times people used an impure form of carbon black which they found in the grimy soot that caked their hearthstones. With it they drew the pictures which centuries later were found on the walls of the caves where they had lived. Egyptians used it to print on papyrus. It gave blackness to the ink with which the first Bible was printed, and it is indispensable in the manufacture of inks used in modern high-speed printing.

Carbon appears in nature in diamonds and graphite. Both these are crystalline forms of the element. In combination with numerous other minerals, such as limestone, coal, and petroleum, carbon is one of the earth's most widely distributed and important elements. Carbon black, which is an uncrystallized form of carbon, is generally manufactured by burning natural gas with insufficient oxygen to consume the carbon which is one of its elements. This is deposited as carbon black on the ceiling or walls of the combustion chamber.

Chiefly Manufactured in Southern Oil Fields

More than one and a half billion pounds of carbon black were produced in the United States in 1951. This is a quantity great enough to fill 25,000 freight cars.

Carbon black is chiefly manufactured in the oil fields of Texas, Oklahoma (illustration, next page), and Louisiana, since natural gas is found in satisfactory quantity in oil-bearing sand and rock. Because natural gas is being diverted in larger and larger quantities to household and industrial use, the carbon-black industry lately has been trying to extract

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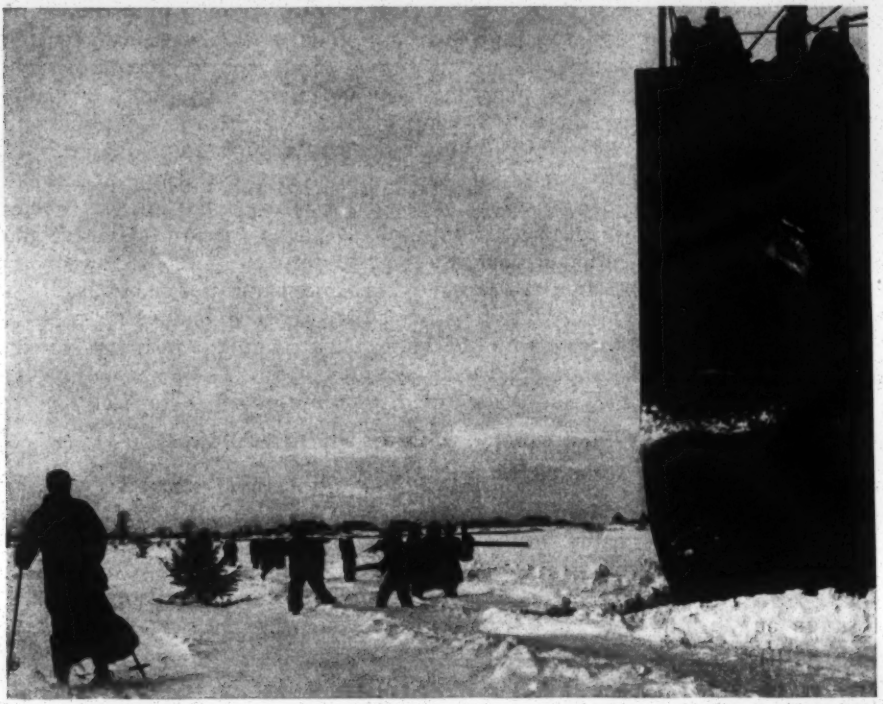
record-breaking start, it should be possible to beat the top tonnage mark set in 1942, when lake vessels carried 136,704,000 tons of cargo.

Grain from the west began arriving at Montreal at the end of the first week in March. Until the St. Lawrence navigation season opens, grain coming down the lakes accumulates in Montreal's grain elevators to await transshipment overseas. These huge structures along the river have a capacity of more than 15,000,000 bushels.

Montreal has been a trading post ever since Jacques Cartier discovered it in 1535. Fur traders came there to dicker with the Indians. Explorers set forth into the wilderness from the island, named from the French for its highest point, 735-foot Mount Royal (Mont Réal).

The island had a summer population but no permanent settlement until 1642 when the French established a Mission to convert the Indians to Christianity. When France surrendered Montreal to Britain in 1760, British traders poured in. With steamships, Montreal replaced Quebec, downriver, as the country's chief port. From then on it outdistanced all other Canadian cities. It now has a population of more than 1,000,000. Toronto, next in size, numbers not quite 700,000.

NOTE: Montreal is shown on the Society's map of Canada, Alaska & Greenland. See also, "Sea To Lakes on the St. Lawrence," in *The National Geographic Magazine* for September, 1950; and, in the GEOGRAPHIC SCHOOL BULLETINS, March 27, 1950, "St. Lawrence Icebreakers Break 1949 Records."



LOUIS JAQUES

THE TOWERING PROW OF AN ICEBREAKER SLASHES A CHANNEL THROUGH THE FROZEN SURFACE OF THE ST. LAWRENCE. FIR TREES MARK THE ROUTE OF A WINTERTIME ROAD ACROSS THE ICE

the useful commodity from oils, turpentines, and various hydrocarbons.

Carbon black is important in the manufacture of paints, crayons, stove polishes, carbon paper, fireworks, glazed paper (such as this bulletin is printed on), insulating materials, and cements. It is being tested in agriculture as an agent for improving the texture of the soil.

Admiral Richard E. Byrd has made the most unusual use of carbon black so far recorded. He dropped bombs of it on the snows of Antarctica to make more easily visible points of reference for his map makers.

B. ANTHONY STEWART

OKLAHOMA CITY OIL DERRICKS TOWER ABOVE THE STATE CAPITOL. THE AREA'S NATURAL GAS PRODUCES MUCH OF THE CARBON BLACK USED IN INDUSTRY ALL OVER THE WORLD

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